



that the F-22 would require 1,400 hours of flight testing, which sounded reasonable to us. In May of 1997, they cut that number to just 601 hours. Now they are saying that only 183 hours is enough, and the Defense Authorization Bill before us endorses that low number. Each F-22 aircraft will cost \$182 million, which is three times more than any aircraft the United States has ever purchased. We think that it is extremely risky to agree to buy such expensive planes after they have been tested for so few hours. If we do, we may very well end up spending \$60 billion on aircraft that have serious design defects. The Bumpers amendment offers a reasonable compromise. It would delay advance procurement for the first six planes that we buy until F-22 flight test vehicles have completed at least 601 hours of testing. That number would still be well below the average amount of time used to purchase less complicated, less expensive aircraft. We urge our colleagues to join us in supporting this prudent amendment.

**Those opposing** the amendment contended:

Our colleagues may be surprised to hear that we largely agree with their arguments, though we, unlike they, are strong supporters of the F-22. We have seen other aircraft, including the B-1 and B-2, rushed into production with inadequate testing, and we have seen the huge problems that have resulted later when defects were found. We imposed a cost cap on the program last year in an effort to keep the program under control, and we have fought to ensure that testing takes place. We believe that the testing that will be required of the F-22 in this bill will be sufficient, and in many ways will be much more rigorous than testing of other aircraft has ever been. First, our colleagues should be aware that testing is not limited to testing of flight test vehicles. The F-22 has gone through, to date: 153 prototype flight test hours; over 365,000 equivalent flight test hours on aircraft components and subcomponents; over 23,000 hours of software/hardware integration testing; over 6,000 hours of engine testing; 600 hours of high-fidelity radar cross section model testing; 450,000 hours of avionic ground tests; 123,000 hours of component structural tests; 2,000 hours of engine ground tests; 43,000 hours of wind tunnel testing; and 25,000 hours of scaled wind tunnel testing. Significantly, that last testing has shown that the plane will not have the same wing problems that the F-18E/F had, which was the major development area of concern. Much of this testing is only recently possible due to advances in technology. For lower costs, we are able to get much more testing. Even with all of the above information, we still want more assurances on the F-22's capabilities before we make any purchases. This bill will require 433 hours of testing before advance procurement for Lot II is permitted, unless the Secretary of Defense certifies that requiring that amount of testing will result in substantial additional costs that will outweigh the costs of going forward with less testing. At a minimum, though, 183 hours will have to be completed. At the same time, the total flight testing that ultimately will be done will be a huge 4,338 hours. Anytime we introduce delays in moving from engineering, to manufacturing and development, to preproduction, or to production, we introduce costs. There is always a balancing act between demanding more testing and demanding cost-containment. We support the balance that is in this bill. The early testing of the F-22 has all been positive, and the advance procurement that this bill will allow will be after some flight testing has occurred and will be only for a small number of all of the planes that will eventually be purchased. We believe that the balance achieved in this bill has the best chance of assuring that the F-22 will live up to expectations without exceeding the projected costs. We therefore must oppose the Bumpers amendment, which would add additional restrictions, and therefore additional costs.